

REMARKS

REQUEST FOR RECONSIDERATION OF RESTRICTION REQUIREMENT TO
ESTABLISH RIGHT OF PETITION

Applicants hereby request reconsideration of the final requirement of restriction.

The restriction requirement is based on distinctness, in particular, that the product claimed can be made by another process materially different than the claimed process.

A proposed process relied upon to establish distinctness is set forth below,

forming sacrificial layers on an etch stop layer formed on a monitor wafer,
the sacrificial layers having predetermined dimensions,

forming a first layer on the wafer and planarizing the first layer to expose a
top surface of the sacrificial layers, and

removing the sacrificial layers, thereby forming trenches in the first layer,
the trenches having the same dimensions as that of the sacrificial layers.¹

Applicants maintain that such a process is not materially different from Applicants' Group II invention. Applicants' claim 10 recites

etching a first layer to form monitor trenches that extend through the first layer
and stop at an etch stop layer on a monitor wafer.

This process is not materially different than "forming sacrificial layers on an etch stop layer...
having predetermined dimensions" in the proposed process, as such a forming step could include
etching.

Similarly, Applicants' claim 20 recites

processing a monitor wafer having monitoring trenches formed in a first layer of
the monitoring wafer....

¹ See the Office Action, dated 5/7/2002, Page 2, Section #3.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

This process is not materially different than the proposed process, as the various steps of the proposed process could result in a “monitor wafer having monitoring trenches formed in a first layer” as set forth in claim 20.

5 For all of the above reasons, Applicants’ respectfully request reconsideration of the finality of the restriction requirement to establish right of petition pursuant to 37 C.F.R. § 1.181(c).

Objections to Drawings

10 Proposed amended drawings are included herein. Changes are indicated by red ink. The drawings have been amended to include the label “BACKGROUND ART.”

Rejections Under 35 U.S.C. §112, Second Paragraph.

15 Claims 11-13 and 16 have been amended according to suggestions by the Examiner and to provide antecedent basis for indicated terms.

Rejection of Claims 10, 14-16 and 19 Under 35 U.S.C. §102(a) based on Applicants’ Background Art (*Background Art*).

20 The invention of claim 10 is directed to a method of forming a monitoring structure. The method includes etching a first layer to form monitor trenches that extend through the first layer and stop at an etch stop layer on a monitor wafer. The method further includes forming a feature in, with, or in relation to the monitor trenches. A process to be monitored by the monitor structure forms a corresponding non-monitor trench in a different layer or material than the first layer.

25 Thus, Applicants’ invention includes forming a monitor trench in a first layer that monitors a process that forms a non-monitor trench in a different layer or material.

As is well known, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single reference. Because the *Background Art* does not show all elements of claim 10, this ground of rejection is traversed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

The *Background Art* does not show forming a monitor trench that monitors a process that forms a non-monitor trench in a different layer or material than the first material of the monitor trench.

Applicants' *Background Art* shows a conventional approach in which a monitor trench monitors a process that forms a non-monitor trench formed in the exact same layer or material. The figure relied upon in the rejection represents both a monitor structure and a non-monitor structure, as conventionally, these structures are the same.² There is no teaching that one would form a monitor trench in one layer, in order to monitor the formation of a feature associated with a trench of an entirely different layer.

Accordingly, because the *Background Art* does not show all features of claim 10, this ground of rejection is traversed.

While claims 14-16 stand rejected, the Office Action has presented no evidence addressing the particular limitations of these claims. Accordingly, anticipation cannot have been established for these claims. These claims present additional limitations not shown in the *Background Art*.

Claim 14 recites that etching the first layer includes forming a substrate trench etch mask on the first layer. No such limitation is shown in the *Background Art*. Clarification of where such a teaching is set forth in the *Background Art* is respectfully requested. It is noted that the structure of Applicants' FIG. 8 does not include or form substrate trenches.

Claim 15 recites that etching the first layer includes forming a substrate trench etch mask pattern that matches a semiconductor-on-insulator lateral island isolation pattern. Again, the structure of Applicants' FIG. 8 does not include or form substrate trenches.

For all of these reasons, this ground for rejection is traversed.

Rejection of Claims 20 and 23-26 Under 35 U.S.C. §102(a) based on the *Background Art*.

The invention of claim 20 is directed to a method of monitoring a semiconductor manufacturing process. The method includes processing a monitor wafer having monitoring trenches formed in a first layer of the monitoring wafer according to at least one process step that

² See the Specification, FIG. 8 and Page 5, Lines 14-19, which indicate that various features of an SOI device can be monitored by examining the same features of a monitoring structure.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

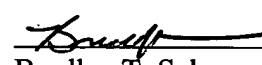
forms a feature. The feature is formed in a non-monitoring wafer in, with, or in relation to a different layer than the first layer in the semiconductor manufacturing process.

Applicants incorporate by reference the same general arguments set forth above for claim 10. Namely, that all of Applicants' *Background Art* examples show cases in which monitoring trenches are formed in a monitoring wafer with a process that forms the same features in the same layer as a non-monitoring wafer.³

For this reason, this ground of rejection is traversed.

Claims 11 and 13-16 have been amended to more clearly define the invention, and not in response to the cited *Background Art*. The present claims 1-26 are believed to be in allowable form. It is respectfully requested that the application be forwarded for allowance and issue.

Respectfully Submitted,

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Bradley T. Sako
Attorney
Reg. No. 37,923

Bradley T. Sako
WALKER & SAKO, LLP
300 South First Street
Suite 235
San Jose, CA 95113
Tel. 1-408-289-5315

³ See the Specification, FIGS. 5A to 5D and Pages 12-15, which forms monitor trenches in a substrate to monitor a chemical-mechanical polishing step for non-monitor trenches formed in the same type substrate. FIGS. 7A and 7B show the same conventional structure as FIGS. 5A to 5D. Finally, FIG. 8 has already been discussed with reference to claim 10.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Version With Markings to Show Changes Made

In the Claims.

5 11. (Amended) The method of claim 10, further including:

the feature can vary according to a different trench depth; and
depositing [a] the first layer to a predetermined thickness equivalent to a
desired trench depth.

10 12. The method of claim 11, further including:

forming [an] the etch stop layer comprising silicon dioxide on a
semiconductor substrate; and
depositing the first layer includes depositing a layer comprising polysilicon
having a thickness less than 5000 angstroms.

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13. (Amended) The method of claim 10, further including:

the process to be monitored forms the non-monitor trench in a normal
wafer; and

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the monitor wafer is a non semiconductor-on-insulator (SOI) wafer and the
normal wafer is a SOI wafer having semiconductor islands of a predetermined
thickness; and

depositing [a] the first layer of the predetermined thickness.

16. (Amended) The method of claim 10, wherein:

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etching the first layer includes substantially anisotropically etching with a
selectivity between the first layer and the [second] etch stop layer of greater than
30:1.